

REMARKS

Claims 7, 10-12, 14, and 16-17 are pending in this application, of which claims 7, 10, 16-17 have been amended. Claims 8-9 and 15 have been canceled. No new claims have been added.

Before turning to the cited references, a brief review of the claimed invention is in order.

The present invention efficiently raises the communication capability between a reader-writer and a (plurality of) noncontact information medium (media). The present invention solves problems observed in the conventional noncontact information medium such that whenever a plurality of noncontact information media are close to the reader-writer or when they are overlapped, a disturbance of a resonance frequency, unstable communication state, and an inability to maintain communication all result, so that data transmission and reception cannot be accurately performed. The present invention also solves a problem such that when the number of the noncontact information media becomes large, the reader-writer is unable to efficiently feed power to all those noncontact information media. In order to solve these problems, in the present invention, the coil is cut off at one part in each of the plurality of noncontact information media to thereby raise the impedance of each noncontact information medium, and to simultaneously lower the induced current and also lower the inductance of the coil, so that the reader-writer is enabled to communicate with a plurality of noncontact information medium whose resonance frequency is equal to that of the reader-writer.

Claims 7-9, 11, 12, and 14-16 stand rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent 6,343,744 to Shibata et al. (hereafter "Shibata et al.").

Applicants respectfully traverse this rejection.

Shibata et al. discloses a noncontact type IC card including an electromagnetic induction coil 4, integrated circuit 2, and switch 3c. The electromagnetic induction coil 4 receives the energy of an electromagnetic field radiated from an external device. The integrated circuit 2 can be operated by driving power supplied by the energy of the electromagnetic field. The switch 3c is provided on the DC 244876.1

electromagnetic induction coil 4 for receiving the energy of the electromagnetic field and switches the inductance of the electromagnetic induction coil 4.

The Examiner urges that switch 3c serves as a "cut-off."

Applicants respectfully disagree. Switch 3c in Shibata et al. functions to inhibit operation of the IC, by short circuiting two points in the middle of the conductive pattern of coil 4, as disclosed in column 5, lines 52-54. It should be noted that in either an open or closed position of the switch 3c, the coil permits a closed circuit to the IC2. This is in contrast to the present invention, in which the removed portion of the coil actually provides an open circuit to prevent AC current from being "easily generated" in the coil, as disclosed on page 8, lines 30-33 of the instant application.

In Shibata et al., an IC card carried by a user is provided with power necessary for its operation from the reader-write by way of an electromagnetic wave, but in fact, its purpose is actually to avoid unnecessary electromagnetic induction from causing an inadvertent operation of the IC card, and in order to realize this prevention. In Shibata et al., a switch is arranged between two terminals connecting the coil and the IC chip, for instance as shown in FIG. 9, so as to short circuit the connection by operating this switch and prevent the IC card from operating.

Accordingly, in Shibata et al. it is necessary to arrange a switching device for connecting and disconnecting the cut-off portion by its ON-OFF operation so as to raise the communication capability of a noncontact information medium with a reader-writer, whereas in the present invention, there is no need to arrange any switching device. Instead, a plurality of noncontact information media are enabled to communicate with a reader-writer by raising the impedance of those noncontact information media by use of a cut-off portion in the coil, and the number of noncontact information media can be readily varied by variably changing the resonance frequency between the reader-writer and those information media through changing the distance among the information media.

In fact, the present invention has a further advantage such that only when a plurality of noncontact information medium are gathered, they start operating, and by

changing the distance between the two adjacent noncontact information media, the number of the noncontact information medium that can communicate with a reader/writer can be determined, so that a series of a plurality of noncontact information medium can be controlled per lot unit in a factor or the like, so that when a false object other than a noncontact information medium is hidden in the series of noncontact information media, it can be easily discovered during the control operation. This capability is not found in the system of Shibata et al.

Thus, the ability of the present invention for enabling a reader-writer to communicate with a plurality of noncontact information media is not disclosed in Shibata et al., which is directed to stopping an inadvertent operation of an IC card by avoiding external interference.

Accordingly, claims 7, 16 and 17 have been amended to clarify this distinction.

In view of the aforementioned amendments and accompanying remarks, claims 7, 10-12, 14, and 16-17, as amended, are in condition for allowance, which action, at an early date, is respectfully solicited.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105.

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Respectfully submitted,

By William L. Brooks

William L. Brooks
Registration No.: 34,129
EDWARDS ANGELL PALMER & DODGE
LLP
P.O. Box 55874
Boston, Massachusetts 02205
(202) 478-7376
Attorneys/Agents For Applicant